Endovascular vs. Open Treatment Of Acute And Chronic Mesenteric Ischemia: When Is Each Best?

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Disclosures

- TMT Systems – owner and patents

Outcomes of Open Mesenteric Revascularization for Chronic Disease

<table>
<thead>
<tr>
<th></th>
<th>Darrow (Bypass) JVS 2001</th>
<th>Jiminezz (Bypass) JVS 2002</th>
<th>Mell (Endart) JVS 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Stay</td>
<td>14 days</td>
<td>32 days</td>
<td>17 days</td>
</tr>
<tr>
<td>Mortality</td>
<td>15%</td>
<td>11%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Recurrence/ Patency</td>
<td>39% recurrence</td>
<td>70% primary - 94% secondary patency</td>
<td>11% reintervene; 14% sx recurrence</td>
</tr>
<tr>
<td>Overall Complication</td>
<td>45%</td>
<td>66%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Outcomes of Endovascular Mesenteric Revascularization for Chronic Disease

<table>
<thead>
<tr>
<th></th>
<th>Sarac JVS 2008</th>
<th>Abu Rhama JVSS 2013</th>
<th>Oderich JVS 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Complications</td>
<td>14%</td>
<td>NR</td>
<td>7%</td>
</tr>
<tr>
<td>Mortality</td>
<td>7.7%</td>
<td>2%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Recurrence/ 1st &amp; 2nd Patency</td>
<td>25%/69,99</td>
<td>17%/69,80</td>
<td>17%/90,100</td>
</tr>
</tbody>
</table>

Who then should we revascularize with open surgery for chronic mesenteric ischemia?
Coral Reef Plaque on CT

Eversion Endarterectomy Treated Mesenteric and Lower Extremity SXS

Long Segment Occlusion SMA Patch Angioplasty and Bypass

Infected Aortas and Debranching

36 Month Post Op CT Angio

Acute Mesenteric Ischemia Treatment Options

1. Thrombolysis with angioplasty and stenting
3. Open Surgical Bypass or Embolectomy
   - May be necessary when no endovascular option exists, such as:
     - Long segment occlusions.
     - Difficult access or crossing a lesion.
     - Embolism - thrombolysis is a relative contraindication.
Mechanical or Pharmacologic Thrombolysis

- Acutely occluded calcified SMA
- Selective Catheterization
- Cross lesion with wire

24 Hours Post Thrombolysis

- Confirm re-entry Infusion Catheter
- Angioplasty
- Self expanding stent

Hybrid Surgery

- If the patient has peritonitis or failed access, retrograde open stenting is an option.
- First reported by Wyers et al JVS 2007 & 2014
- Multi center study from 7 centers - Oderich et al JVS 2018
  - 44/54 patients treated were for AMI
  - Bowel resection was required in 66% of patients

Hybrid Surgery Multicenter Results

- Mortality
- Morbidity
- Primary Patency
- Secondary Patency

Acute Mesenteric Ischemia Results

CCF - J Vasc Surg 2012

- 70 patients were treated for ami over 10 years.
- 65% thrombotic, 35% embolic
- 80% endovascular – 20% open
  - Endo was successful in 87% of the patients
  - Thrombotic occlusion had 10x less mortality with endo

<table>
<thead>
<tr>
<th>Variable</th>
<th>Endo</th>
<th>Open</th>
<th>P Value</th>
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</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>36%</td>
<td></td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Renal Failure</td>
<td>27%</td>
<td>Endo</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>27%</td>
<td>Endo</td>
<td>&lt;.05</td>
</tr>
</tbody>
</table>

Conclusions

- Both open and endovascular therapy have distinct roles in treating acute and chronic mesenteric ischemia.
- As Vascular Surgeons, we have many options.